

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/005835

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 E02F9/22 F15B11/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F15B E03F E02F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 164 297 A (NAT AEROSPACE LAB ; HITACHI CONSTRUCTION MACHINERY (JP)) 19 December 2001 (2001-12-19) cited in the application paragraphs '0012! - '0041!; figure 1	1-7
A	PATENT ABSTRACTS OF JAPAN vol. 0050, no. 65 (M-066), 30 April 1981 (1981-04-30) & JP 56 018102 A (NIPPON AIR BRAKE CO LTD), 20 February 1981 (1981-02-20) abstract	1-7
A	US 6 289 675 B1 (HERFS WERNER ET AL) 18 September 2001 (2001-09-18) column 4, line 15 - column 6, line 55; figure 1	1
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

21 September 2004

Date of mailing of the international search report

01/10/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 801 231 A (COMMERCIAL INTERTECH CORP) 15 October 1997 (1997-10-15) column 7, line 30 - column 9, line 27; figure 1	1
A	EP 1 262 667 A (HITACHI CONSTRUCTION MACHINERY) 4 December 2002 (2002-12-04) paragraphs '0054! - '0056!; figure 4	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/005835

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1164297	A	19-12-2001	EP 1164297 A1	19-12-2001
			US 2002134227 A1	26-09-2002
			WO 0155603 A1	02-08-2001
JP 56018102	A	20-02-1981	JP 1199905 C	05-04-1984
			JP 58031486 B	06-07-1983
US 6289675	B1	18-09-2001	DE 19703997 A1	06-08-1998
			AT 238497 T	15-05-2003
			DE 59709931 D1	28-05-2003
			WO 9834031 A1	06-08-1998
			EP 0958455 A1	24-11-1999
			JP 2001509867 T	24-07-2001
EP 0801231	A	15-10-1997	US 5699665 A	23-12-1997
			AT 196673 T	15-10-2000
			DE 69703176 D1	02-11-2000
			DE 69703176 T2	25-01-2001
			EP 0801231 A1	15-10-1997
			JP 10061603 A	06-03-1998
EP 1262667	A	04-12-2002	JP 2002206508 A	26-07-2002
			EP 1262667 A1	04-12-2002
			US 2003019209 A1	30-01-2003
			WO 02055888 A1	18-07-2002